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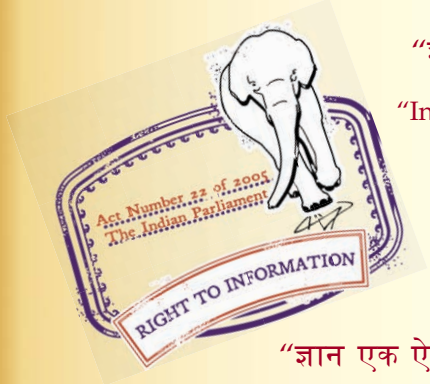
IS 13164 (1991): Ferrosilicomagnesium [MTD 5: Ferro Alloys]



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"Knowledge is such a treasure which cannot be stolen"

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भारतीय मानक

फेरोसिलिको मैग्नीशियम – विशिष्टि

Indian Standard

FERROSILICOMAGNESIUM—SPECIFICATION

UDC 669·15·782·721 — 198

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

October 1991

Price Group 1

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Ferro Alloys Sectional Committee had been approved by the Metallurgical Engineering Division Council.

The use of Ferrosilicomagnesium in the production of nodular or SG iron is well established in the country. There is also a certain amount of indigenous production already started for this material as well as the related alloys like Nickel-Magnesium alloy and other innoculants for the purpose of production of the nodular iron, SG iron and other high grade cast irons.

Keeping in view the importance of this material, it was decided to prepare a standard for ferrosilicomagnesium giving the various quality requirements of this product.

For the purpose of deciding whether a particular requirements of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values *(revised)*.' The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

FERROSILICOMAGNESIUM—SPECIFICATION

1 SCOPE

This standard covers the requirements of ferrosilicomagnesium used in ferrous and non-ferrous industry.

2 REFERENCES

The following Indian Standards are necessary adjuncts to this standard:

IS No.	*Title*
1387 : 1967	General requirements for the supply of metallurgical materials (*revised*)
1472 : 1977	Methods of sampling ferroalloys for determination of chemical composition (*first revision*)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Cast (Melt)

The product of any of the following:

a) One furnace heat, or

b) One tap of continuous furnace, or

c) A number of furnace or crucible heats of similar composition mixed in a ladle or holding furnace and used for making a cast.

3.2 Consignments

3.2.1 *Tapped Lot Method*

A consignment constituted by the tapped lot method, consists of a ferrosilicomagnesium mass of one melt (or one part of a continuous tap).

3.2.2 *Graded Lot Method*

A consignment constituted by the graded lot method consists of a number of melts (or parts of continuous taps) of one ferrosilicomagnesium designation.

The silicon and magnesium content of the melts (or parts of continuous taps) constituting the consignment shall not differ from each other by more than 3 percent absolute.

3.2.3 *Blended Lot Method*

A consignment constituted by the blended lot method consists of a number of melts (or parts of continuous taps) of one ferrosilicomagnesium designation, which have been crushed to a particle size less than 50 mm and thoroughly mixed.

The content of the main constituent of the melts (or parts of continuous taps) constituting the consignment may vary between the minimum and maximum limits specified for the appropriate ferrosilicomagnesium designation.

3.3 Definition

Ferrosilicomagnesium is an alloy of iron, silicon and magnesium containing 40-60 percent silicon and 2-22 percent magnesium apart from limited amount of aluminium, calcium, etc.

4 GRADES

This standard covers six grades of ferrosilicomagnesium as specified in Table 1.

5 PARTICULARS TO BE SPECIFIED WHILE ORDERING

For the benefit of the purchaser, particulars to be specified while ordering for the material to this specification shall be as follows:

a) Quantity of the material;

b) Constitution of consignment;

c) Name of the material;

d) Grade;

e) Size range; and

f) Necessary requirements for analysis, and reports, packing, etc, as appropriate.

6 SUPPLY OF MATERIALS

General requirements relating to supply of the material to this specification shall be as laid down in IS 1387 : 1967.

7 REQUIREMENTS

7.1 Constitution of Consignment

Ferrosilicomagnesium shall be delivered inconsignments constituted by any one of the methods defined in 3.2.

7.2 Chemical Composition

7.2.1 Each batch of the material shall conform to the requirements of the chemical composition specified in Table 1 and if so specified by the purchaser at the time of enquiry and order, manufacturer shall supply a test certificate of chemical analysis of the sample of material for each melt.

NOTE — The material belonging to a cast/melt which is out of specification, shall not be blended or mixed with the material of another cast/melt.

7.2.2 If specified by the purchaser at the time of enquiry and order that each lump of the consignment should conform to the chemical composition specified in Table 1, this shall be agreed to between the purchaser and the manufacturer.

7.2.3 The chemical composition given in Table 1 shows only the main constituent elements and usual impurities. If the purchaser requires closer ranges for the main element contents and/or different limits for specified elements and/or non-specified elements, this shall be agreed to between the purchaser and the manufacturer.

7.2.4 The chemical composition of the material shall be determined by any established instrumental/chemical method. In case of dispute the referee method shall be agreed to between the purchaser and the manufacturer till the Indian Standard is published for the analysis of ferrosilicomagnesium.

8 SIZE RANGE

8.1 The material shall be supplied in lumps or as crushed and screened particles. The particle size range shall be 10-15 mm with tolerances of ± 10 percent maximum for the oversize and the undersize. The undersize values shall be valid at the point of delivery to the purchaser.

8.2 If the purchaser requires particle size ranges and/or tolerances other than those given in **8.1**, these shall be valid at the point of delivery to the purchaser.

9 EXTRANEOUS CONTAMINATIONS

The material shall be reasonably free from extraneous contaminations like slag, non-metallic inclusions, etc.

10 SAMPLING

Each batch of the material shall be sampled in accordance with IS 1472 : 1977.

11 PACKING

The material shall be suitably sealed and packed in steel drums with the net contents of 100 kg or as mutually agreed to between the supplier and the purchaser.

12 MARKING

12.1 The container shall be marked with the following:

a) Source of manufacture/trade-mark;

b) Grade, cast or lot number and size designation;

c) Quantity;

d) Date of manufacture; and

e) Shelf life, if required.

12.2 The material may also be marked with the Standard Mark.

Table 1 Chemical Composition of Ferrosilicomagnesium

(*Clauses* 4, 7.2.1, 7.2.2 *and* 7.2.3)

Grade	Si		Mg		Al	Ca
	Over	Up to and Including	Over	Up to and Including	*Max*	*Max*
Fe Si 48 Mg 05	46	50	3	6	1	2
Fe Si 48 Mg 08	46	50	6	10	1	2
Fe Si 50 Mg 12	48	52	10	14	1	2
Fe Si 50 Mg 15	48	52	14	18	1	2
Fe Si 52 Mg 15	50	55	14	18	1	2
Fe Si 52 Mg 20	50	55	18	22	1	2

Standard Mark

The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.